

## **REMARKS**

Reconsideration of the above-identified patent application in view of the amendment above and the remarks below is respectfully requested.

No claims have been canceled or added in this paper. Claim 16 has been amended in this paper. Therefore, claims 1-54 are pending. Of these claims, claims 3-4, 7-10, 13-14, 17-24, 28-37 and 42-54 have been withdrawn from consideration. Accordingly, claims 1-2, 5-6, 11-12, 15-16, 25-27 and 38-41 are under active consideration.

Claims 1, 11 and 12 stand rejected under 35 U.S.C. 102(b) “as being anticipated by Abileah et al. (U.S. 5,579,139).” In support of the rejection, the Patent Office states the following:

Abileah et al. discloses an active matrix type liquid crystal display device having reduced canopy reflection. Note in figure 2, rear polarizer 25, front polarizer 33, backlight 37 and liquid crystal layer 29. Note that the transmission axis of rear polarizer 25 is perpendicular to the transmission axis of front polarizer 33 as shown in figure 2.

Applicants respectfully traverse the foregoing rejection. It is well-established that, to anticipate a claim, a reference must teach **each and every** limitation of the claim. For at least the reasons given below, Applicants respectfully submit that Abileah et al. fails to teach **each and every** limitation of claims 1, 11 and 12.

Claim 1, from which claims 11 and 12 depend, recites “[a] liquid crystal display comprising:

- (a) a first transparent plate;
- (b) a second transparent plate;
- (c) a liquid crystal display panel positioned between said first and second transparent plates, said liquid crystal display panel comprising a first transparent substrate, a second

transparent substrate, liquid crystal material positioned between said first and second transparent substrates, a first transparent electrode positioned between said liquid crystal material and said first transparent substrate, and a second transparent electrode positioned between said liquid crystal material and said second transparent substrate;

(d) a rear polarizer positioned between said liquid crystal display panel and said second transparent plate; and

(e) a front polarizer positioned in front of said first transparent plate, said front polarizer being crossed relative to said rear polarizer."

By contrast, Abileah et al. discloses a liquid crystal display (see Fig. 4 of Abileah et al.) that includes, when viewed from the rear forward, a rear polarizer 25, a rear substantially transparent glass or plastic substrate 51, pixel electrodes 53, a rear orientation film 27, a liquid crystal layer 29, a front orientation film 31, a common electrode 55, a front substantially transparent glass or plastic substrate 57, a front polarizer 33 and a retarder 35.

As a result, Abileah et al. fails to teach, among other things, the combination of first and second transparent plates (claimed elements (a) and (b)) and a liquid crystal display panel positioned between said first and second transparent plates wherein said liquid crystal display panel comprises (i) a first transparent substrate, (ii) a second transparent substrate, (iii) liquid crystal material positioned between said first and second transparent substrates, (iv) a first transparent electrode positioned between said liquid crystal material and said first transparent substrate, and (iv) a second transparent electrode positioned between said liquid crystal material and said second transparent substrate (claimed element (c)).

In other words, if one reads the claimed first and second transparent **substrates** of the claimed liquid crystal display **panel** onto Abileah substrates 57 and 51, respectively, it is apparent that there is no structure in Abileah et al. that corresponds to the claimed first and second transparent **plates** between which the claimed liquid crystal display **panel** is positioned. Alternatively, if one reads the claimed first and second transparent **plates** onto Abileah substrates 57 and 51, respectively, it is apparent that there is no structure in Abileah et al. that corresponds to the claimed first and second transparent **substrates** between which first and second transparent electrodes and liquid crystal material are positioned.

Therefore, it is clear that Abileah et al. fails to teach, among other things, the combination of first and second transparent **plates** and first and second transparent **substrates**.

Moreover, nothing in Abileah et al. suggest the claimed combination of elements.

Accordingly, for at least the above reasons, the foregoing rejection should be withdrawn.

Claims 1, 2, 5, 6, 11, 12, 15 and 16 stand rejected under 35 U.S.C. 103(a) “as being unpatentable over Kono et al. (U.S. 4,723,836).” In support of the rejection, the Patent Office states the following:

As to claims 1, 5, 15 and 16, Kono et al. discloses a conventional handwritten character input tablet in figure 1. Note transparent substrates 2 and 3, liquid crystal layer 9, polarizers 1 and 4, and transparent tablet 6.

Although Kono et al. does not disclose that the polarizers are crossed, it would have been obvious to one of ordinary skill in the art at the time of invention to do this with normally white mode twisted nematic displays and normally black mode vertically aligned displays.

As to claims 2 and 6, Kono et al. does not explicitly disclose that the substrates are made of glass. However, it was well known and obvious to make substrates from glass because of the level of

transparency in glass. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to make the substrates in a liquid crystal display from glass because of the high degree of transparency.

Applicants respectfully traverse the foregoing rejection. Claim 1, from which claims 2, 5, 6, 11, 12, 15 and 16 depend, is recited above.

By contrast, Kono et al. discloses a handwritten character input device (see Fig. 1 of Kono et al.) that includes a polarizer 1, a pair of substrates 2 and 3 sealing a liquid crystal layer 9, a second polarizer 4 and a reflector 5. A transparent tablet or digitizer 6 is positioned over the polarizer 1.

If one reads the claimed first and second transparent **substrates** of the liquid crystal display **panel** onto substrates 2 and 3, respectively, of Kono et al., it is apparent that there is no structure in Kono et al. corresponding to or suggesting, among other things, a front polarizer positioned in front of a first transparent **plate**. Alternatively, if one reads the claimed first and second transparent **plates** onto substrates 2 and 3, respectively, of Kono et al., it is apparent that there is no structure corresponding to or suggesting the claimed first and second transparent **substrates**.

Accordingly, for at least the above reasons, the foregoing rejection should be withdrawn.

Claims 25-27 and 38-41 stand rejected under 35 U.S.C. 103(a) “as being unpatentable over Broer et al. (U.S. 5,808,713) in further view of Larson et al. (U.S. 6,392,727) and Kono et al. (4,723,836).” In support of the foregoing rejection, the Patent Office states the following:

As to claims 25, 38 and 41, Broer et al. discloses a flat-panel display device having a picture display panel for modulating the state of polarization of polarized light. Note in figure 1, electro-optic material 13, substrates 15 and 17, transparent electrodes 19 and 21, and polarizers 27 and 31. Broer et al. teaches arranging polarizer 27 so that it is not in contact with surface 25 of substrate 15 so as to avoid conductance of light in the polarizer. Broer et al. teaches either leaving an air gap 28 between the display panel 3 and polarizer 27, or

securing the polarizer 27 to the picture display panel 3 by means of an adhesive having a low refractive index.

Broer et al. does not teach adhering the front or rear polarizer to the display panel using an index-matched optical bonding material or index-matched pressure-sensitive adhesive. Larson et al. teaches suppression of residual reflection by applying adhesives between a glass substrate and polarizer to bond the substrate to the polarizer and achieve some level of index matching, which tends to reduce the reflectances from the boundary between the substrate and polarizer. See column 1, lines 39-44. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to adhere the front and rear polarizer to the substrates in the device of Broer et al. using an index-matched pressure sensitive adhesive or optical bonding material in order to suppress residual reflection.

Broer et al. does not disclose a transparent cover. Kono et al. discloses a transparent substrate 6 in figure 1. The substrate acts as a tablet for accepting input to a handwritten character input device. See column 1, lines 1-30. Similarly, it was well known and obvious to provide a transparent cover for use as a touch screen. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide a transparent cover to the device of Broer et al. for use as a touch screen or input tablet.

As to claims 26, 27, 39 and 40, Broer et al. discloses that substrates 15 and 17 can be made of glass or synthetic material. See column 6, lines 20-24. It was well known and obvious to make substrates of plastic because it was both transparent and more durable and shock resistant than glass. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to form the substrates from plastic because of its durability and shock resistance.

Applicants respectfully traverse the foregoing rejection. Claim 25, from which claims 26 and 27 depend, recites “[a] liquid crystal display comprising:

(a) a liquid crystal display panel, said liquid crystal display panel comprising a first transparent substrate, a second transparent substrate, liquid crystal material positioned between said first and second transparent substrates, a first transparent electrode positioned between said liquid

crystal material and said first transparent substrate, and a second transparent electrode positioned between said liquid crystal material and said second transparent substrate;

(b) a rear polarizer positioned behind said liquid crystal display panel, said rear polarizer being directly adhered to said liquid crystal display panel with a first index-matched, pressure sensitive adhesive;

(c) a front polarizer positioned in front of said liquid crystal display panel, said front polarizer being crossed relative to said rear polarizer and being directly adhered to said liquid crystal display panel with an index-matched optical bonding material; and

(d) a transparent cover, said transparent cover being positioned in front of said front polarizer and being directly adhered thereto with a second index-matched, pressure-sensitive adhesive."

The Patent Office is apparently conceding that Broer et al. fails to teach, among other things, (i) directly adhering the front or rear polarizers to the liquid crystal display panel with an index-matched optical bonding material and (ii) directly adhering a transparent cover to the front polarizer with an index-matched, pressure-sensitive adhesive. Notwithstanding the above, the Patent Office appears to argue (i) that Larson et al. teaches applying adhesives between a glass substrate and polarizer to suppress residual reflection and to achieve some level of index matching; (ii) that Kono et al. teaches a transparent cover; and (iii) that it would have been obvious to one of ordinary skill in the art at the time of the invention to adhere the front polarizer to the substrate in Broer et al. using an index-matched pressure sensitive adhesive or optical bonding material in order to suppress residual reflection. For at least the reasons below, Applicants respectfully disagree.

As correctly noted by the Patent Office, Broer et al. teaches leaving an air gap between its front polarizer and its respective liquid crystal display panel (or by bonding them together with a non-index matched adhesive) **so as to avoid conductance of light by the polarizer, i.e., to promote reflection of light by the polarizer.**

By contrast, the passage of Larson et al. relied upon by the Patent Office (col. 1, lines 39-44) teaches applying “adhesives between the cover glass 4 and the front polarizer 8 to bond the glass to the polarizer and achieve some level of index matching, which tends to reduce the reflectances from the boundary between the cover glass 4 and the air gap 9 or the front polarizer 8.” In other words, Larson et al. teaches applying an adhesive between a cover glass and a front polarizer **to reduce reflectance and to promote conductance at the front polarizer.** However, as noted above, the reduction or suppression of reflectance at the front polarizer is precisely the **opposite** outcome that is desired by Broer et al., Broer et al. seeking **to avoid the conductance and to promote the reflection of light at the front polarizer.**

Consequently, because modifying Broer et al. in manner taught by Larson et al. would run counter to the purpose taught by Broer et al., one of ordinary skill in the art would not have been motivated to modify Broer et al. in this manner.

Moreover, it should be noted that, whereas the Patent Office is alleging that Larson et al. teaches applying an adhesive between the **Larson front polarizer 8** and the **Larson substrate 10 of the liquid crystal display panel**, Larson et al. does not, in fact, teach or suggest adhering the **Larson front polarizer 8** to the **Larson liquid crystal display panel 10**, but rather, is limited to disclosing adhering the **Larson cover glass 4** to the **Larson front polarizer 8** (a cover glass not even being present in Broer et al.).

Claim 38, from which claims 39-41 depend, recites “[a] liquid crystal display comprising:

(a) a liquid crystal display panel, said liquid crystal display panel comprising a first transparent substrate, a second transparent substrate, liquid crystal material positioned between said first and second transparent substrates, a first transparent electrode positioned between said liquid crystal material and said first transparent substrate, and a second transparent electrode positioned between said liquid crystal material and said second transparent substrate;

(b) a rear polarizer assembly positioned behind said liquid crystal display panel, said rear polarizer assembly comprising a rear polarizer and a first index-matched pressure sensitive adhesive, said rear polarizer having a front side and a rear side, said first index-matched pressure sensitive adhesive being positioned on said front side of said rear polarizer;

(c) a front polarizer assembly positioned in front of said liquid crystal display panel and separated from said liquid crystal display by an air gap, said front polarizer assembly comprising a front polarizer and a second index-matched pressure sensitive adhesive, said front polarizer being crossed relative to said rear polarizer and having a front side and a rear side, said second index-matched pressure sensitive adhesive being positioned on said front side of said front polarizer; and

(d) a transparent cover, said transparent cover being positioned in front of said front polarizer assembly and in contact with said second index-matched pressure sensitive adhesive.”

Claim 38 is not rendered unpatentable over the applied combination of references for at least the reason that the references do not teach or suggest, among other things, a rear polarizer assembly comprising a rear polarizer and a first index-matched pressure sensitive adhesive, said rear polarizer having a front side and a rear side, said first index-matched pressure sensitive adhesive being positioned on said front side of said rear polarizer.

Accordingly, for at least the above reasons, the foregoing rejection should be withdrawn.

In conclusion, it is respectfully submitted that the present application is in condition for allowance. Prompt and favorable action is earnestly solicited.

If there are any fees due in connection with the filing of this paper that are not accounted for, the Examiner is authorized to charge the fees to our Deposit Account No. 11-1755. If a fee is required for an extension of time under 37 C.F.R. 1.136 that is not accounted for already, such an extension of time is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

Kriegsman & Kriegsman

By: Edward M. Kriegsman

Edward M. Kriegsman  
Reg. No. 33,529  
665 Franklin Street  
Framingham, MA 01702  
(508) 879-3500

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Fee Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on October 21, 2003

Edward M. Kriegsman

Edward M. Kriegsman

Reg. No. 33,529

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